APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,634	06/29/2001	Khanh Mai	5597	5800

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EXAMINER
VAUGHN JR, WILLIAM C

ART UNIT	PAPER NUMBER
2143	

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/893,634	MAI ET AL.
	Examiner	**Art Unit**
	William C. Vaughn, Jr.	2143

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 February 2004*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This Action is in regards to the most recent papers received 29 June 2001.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

3.   Claims 1-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

Regarding independent claims 1, (e.g., exemplary independent claim 1), the recitation of "if the

attached network is not totally multicast enabled", is unclear and vague. It is unclear of the

metes and bounds of what qualifies as being "not totally multicast enabled".

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   **Claims 1, 5-12, 17-24 and 29-36** are rejected under 35 U.S.C. 103(a) as being

unpatentable over McCanne, U.S. Patent No. 6,611,872 in view of Nurenberg et al. (Nurenberg),

U.S. Patent No. 6,181,697.

6.   Regarding **claim 1, 13 and 25**, McCanne discloses the invention substantially as claimed.

McCanne discloses *a method of virtual multicasting (VMC) multicast content on non-multicast*

enabled networks, comprising the steps of: determining if an attached network is multicast

enabled, wherein the network includes client computers that have unicast addresses [see

McCanne, Col. 7, lines 40-54]. However, McCanne does not explicitly disclose if the attached

network is not totally multicast enabled, querying for virtual multicast requests for the multicast

content from non-multicast enabled client computers; listening for virtual multicast requests,

wherein at least one virtual multicast request includes a unicast address identifying a client

computer of the network and a requested method of delivery for the multicast content; and

determining, based on the virtual multicast requests, which client computers request the multicast

content, from the unicast addresses, and the requested methods of delivery for the multicast

content.

7.   In the same field of endeavor, Nurenberg discloses (e.g., method for a unicast endpoint

client to access a multicast internet protocol session). Nurenberg discloses *if the attached*

network is not totally multicast enabled, querying for virtual multicast requests for the multicast

content from non-multicast enabled client computers [see Nurenberg, abstract, Col. 3, lines 26-

65 and Col. 4, lines 1-56]; *listening for virtual multicast requests, wherein at least one virtual*

multicast request includes a unicast address identifying a client computer of the network and a

requested method of delivery for the multicast content [see Nurenberg, Col. 5, lines 50-60]; *and*

determining, based on the virtual multicast requests, which client computers request the

multicast content, from the unicast addresses, and the requested methods of delivery for the

multicast content.

8.   Accordingly, it would have been obvious to one of ordinary skill in the networking art at

the time the invention was made to have incorporated Nurenberg's teachings of a method for a

unicast endpoint client to access a multicast internet protocol session with the teachings of

McCanne, for the purpose of providing a endpoint client connected to a unicast network the
ability to participate in multicast sessions [see Nurenberg, Col. 1, lines 40-51]. By this rationale
claim 1 is rejected.

9.   Regarding **claim 5, 17 and 29**, McCanne-Nurenberg discloses further comprising the;
steps of: selecting an optimal upstream virtual router; and forwarding a multicast request for the
multicast content to the selected upstream virtual router [see McCanne, col. 3, lines 57-67].

10.   Regarding **claims 6, 18 and 30**, McCanne-Nurenberg discloses wherein the selecting step
comprises the steps of: determining a router load on upstream virtual routers; determining a
round trip time on the upstream virtual routers; and balancing the determined router loads and
round trip times for the upstream virtual routers, wherein the selecting step selects the upstream
virtual router with the best balance of router load and round trip time [see McCanne, Col. 16,
lines 58-64].

11.   Regarding **claim 7, 19 and 31**, McCanne-Nurenberg discloses wherein the determining if
the attached network is multicast enabled comprises the step of: listening for Internet Group
Management Protocol (IGMP) queries [see McCanne, Col. 9, lines 23-54]. By this rationale
claim 7 is rejected.

12.   Regarding **claim 8, 20 and 32**, McCanne-Nurenberg discloses *wherein the querying step
comprises the step of: issuing virtual IGMP (VIGMP) queries, wherein VIGMP queries query
client computers for VIGMP reports that request unicast or multicast delivery of the multicast
content* [The Examiner takes Official Notice, [MPEP 2144.03]].

13.   Regarding **claim 9, 21 and 33**, McCanne-Nurenberg discloses *wherein the VIGMP
reports that request unicast delivery of the multicast content include a unicast address for a*

requesting client computer and a multicast address for the multicast content [see rejection of

claim 7, supra].

14.   Regarding **claim 10, 22 and 34,** McCanne-Nurenberg discloses *wherein the listening step*

listens for virtual multicast requests from downstream virtual routers [see rejection of claim 7,

supra].

15.   Regarding **claim 11, 23 and 35,** McCanne-Nurenberg discloses *wherein the listening step*

listens for virtual multicast requests from downstream virtual routers by listening for Virtual

Multicast Registration protocol (VMCRP) reports from the downstream virtual routers [see

rejection of claim 7, supra].

16.   Regarding **claim 12, 24 and 36,** McCanne-Nurenberg discloses *wherein the VMCRP*

reports in clued a unicast address for a requesting downstream virtual router and a multicast

address for the multicast content [see rejection of claim 7, supra]. By this rationale **claim 12** is

rejected.

Claim Rejections - 35 USC § 103

17.   Claims **2-4, 14-16, 26-28** are rejected under 35 U.S.C. 103(a) as being unpatentable over

McCanne-Nurenberg as applied to claims 1, 13 and 25 above, and further in view of Zhang et al.

(Zhang), U.S. Patent No. 6,741,575.

18.   Regarding **claims 2-4, 14-16, 26-28,** McCanne-Nurenberg discloses the invention

substantially as claimed. However, McCanne-Nurenberg does not explicitly disclose further

comprising the step of building a table of requesting client computers based on the requesting

client computers determined from the determining step.

19.   In the same field of endeavor, Zhang discloses (e.g., apparatus and method for efficient delivery of multicast data). Zhang discloses *further comprising the step of building a table of requesting client computers based on the requesting client computers determined from the determining step* [see Zhang, Col. 7, lines 34-42].

20.   Accordingly, it would have been obvious to one of ordinary skill in the networking art at the time the invention was made to have incorporated Zhang's teachings of an apparatus and method for efficient delivery of multicast data with the teachings of McCanne-Nurenberg for the purpose of providing a more efficient way of keeping track of requests within a unicast and multicast environment. By this rationale **claim 2** is rejected.

21.   Regarding **claim 3, 15 and 27**, McCanne-Nurenberg and Zhang discloses further comprising the steps of receiving the multicast content, wherein the multicast content comprises a plurality of packets [see rejection of claim 3, supra]; replicating the packets and addressing the packets per the table of requesting client computers; and transmitting the replicated and addressed packets to the requesting client computers.

22.   Regarding **claim 4, 16 and 28**, McCanne-Nurenberg and Zhang discloses wherein: the building step builds a VMC client table (VCT) file that includes the identities of the requesting client computers and the unicast addresses of the requesting clients; and the method further comprises: reading the VCT file for the identities of the requesting client computers and the unicast addresses of the requesting clients, wherein the replicating step addresses the packets per the unicast addresses of the requesting clients [see Zhang, Col. 13, lines 1-13].
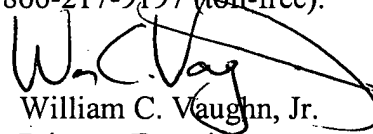
Conclusion

23.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Vaughn, Jr. whose telephone number is (571) 272-3922. The examiner can normally be reached on 8:00-6:00, 1st and 2nd Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

William C. Vaughn, Jr.
Primary Examiner
Art Unit 2143
07 December 2005

WCV